# DIRECT TESTIMONY OF RICK JACOBS

## Introduction

Q. Please state your name and business address.

A. My name is Rick Jacobs; my title is General Manager-Network Regulatory. I am employed by SBC Management Services, Inc., a subsidiary of SBC. My business address is 530 McCullough Ave., San Antonio, TX. 78215.

Q. Please summarize your education and experience in the telecommunications industry.

A. I began my career with Southwestern Bell Telephone (SWBT) in 1976. I held positions in Network Administration and Network Maintenance until 1987 when I was assigned to a five year Bell Communications Research (Bellcore) rotational assignment. At Bellcore I was responsible for Instruction and Development of technical training related to switching systems and Common Channel Signaling / Signaling System 7. I returned to SWBT in 1992 and held various positions responsible for switching equipment, signaling, operations, new product and service development, interconnection, collocation, and regulatory support. I assumed my current Network Regulatory position in March 2000. My current responsibilities include representing the planning, engineering, and operations of SBC's affiliate

Telephone Company's networks before federal and state regulatory bodies. I have a Bachelor of Science Degree from the University of Central Arkansas that I received in 1975. I also completed numerous training courses conducted by Southwestern Bell, AT&T, and Bellcore.

Purpose

Q. What is the purpose of your testimony?

A. My purpose is to describe the future evolution of the telephone network as envisioned by SBC/Ameritech. I will discuss current and future plans that have been developed to help assure the Commission that the benefits of infrastructure enhancements will continue to benefit the Illinois economy. The planned infrastructure improvements I discuss will continue to make the network more efficient and provide new services.

Current Structure of the Ameritech Illinois Network

Q. Please describe the general structure of the Ameritech Illinois network.

A. As Mr. Gebhardt described in his testimony, the Ameritech Illinois network has continued to evolve over the last five years, since the introduction of the

Ameritech Illinois Alternative Regulatory Plan. We have continued to insure vendor diversity by acquiring switching systems from Lucent (41%), Nortel (43%), and Siemens (16%). We also continue to aggressively upgrade these switching systems with the most advanced software and hardware made available by these vendors. Virtually all of the Company's interoffice facilities are now fiber. Ameritech Illinois has also completed its deployment of SS7 capabilities. SS7 technology not only improves network efficiency and call handling processes, but also provides necessary capabilities for the Advanced Intelligent Network (AIN). AIN permits development of new products and services that rely on enhanced look-up and call routing capabilities. Approximately 65% of the Company's central offices have been equipped with the AIN platform. Today, all Ameritech Illinois' customers have digital switching capabilities available to them. The network not only serves Ameritech Illinois' end user customers, but also allows for the resale of services, interconnection of networks, and unbundling of network elements. The existing network structure accommodates the ability to collocate CLEC equipment in Ameritech Illinois' eligible structures for the purposes of interconnection and access to unbundled network elements.

Q. What are your general expectations regarding changes that will be made to the overall network structure over the next five years?

A. We plan to implement improvements that will continue to make the network more efficient and provide new services. Ameritech Illinois will be upgrading and retrofitting various central offices. We plan to deploy fiber and electronics to support retail and wholesale loop access products including broadband services. We will continue to deploy and grow an optically interconnected SONET based architecture that will utilize OC-48 Bi-Directional Line Switched Rings (OC-48 BLSR) that are cost effective, manageable, and reliable. Our plans also include OC-192 deployment that provides high bit rate SONET for Interexchange Carrier meet points as well as large customer dedicated rings.

Q. Could you please explain further what you mean by the terms: broadband services; SONET; OC-48 Bi-Directional Line Switched Ring and OC-192?

A. The term “broadband services” is commonly used for services that provide high-speed, high-capacity Internet and data connections.

Synchronous Optical Network (SONET) is a set of standards for the transmission of digital signals over fiber. Equipment based on SONET standards is faster, has greater capacity, provides additional capabilities and is more flexible than equipment previously used. A major advantage of SONET-based technology is the high speed/capacity of the systems. SONET-based equipment has enhanced remote maintenance and

monitoring capabilities, which permit trouble isolation. The SONET-based systems lend themselves to ring configurations where the working and protection paths are configured in a “circular” manner. The ring configuration also greatly reduces the cost of “survivability” because existing routes can be used, avoiding the costly digging and restoration work associated with new cable paths and the possible need to secure additional rights-of-way. The SONET-based systems allow flexibility in carrying different bandwidth or rates of transmission and can identify separate circuits and extract lower bandwidth signals without separating the entire signal. This makes it possible to drop and add signals bound for different destinations along the system’s path.

The OC-48 Dedicated Ring is a service that provides a high capacity survivable SONET ring service to customers who have large capacity needs. An OC-48 BLSR provides duplicate, geographically diverse paths for each service riding it, and as such, protects against cable cuts and node failures. A BLSR allows bandwidth to be reused as traffic is added/dropped at various locations around the ring, which makes it an ideal architecture for the distributed "mesh" traffic patterns that are typical of today’s Inter Office Facility networks.

Finally, OC-192 is an optical technology that is used to increase the bandwidth of existing fiber infrastructure. OC-192 permits Ameritech Illinois to more effectively use its existing fiber infrastructure to provide more

bandwidth to a broader range of customers. OC-192 increases the capacity of the current technology by about fourfold.

OC-192 is also the infrastructure used to provide a transport service to customers with very large circuit capacity needs via a dedicated optical ring. This dedicated ring service is a "survivable" ring that can provide redundancy for every circuit, virtually assuring no service interruption in the event of a fiber cut.

Q. How will these changes to the Ameritech Illinois network structure enable Ameritech Illinois to better serve its customers and competitors, alike?

A. These changes will add features, functions, capacity, and increased reliability to the network. Deploying new technology will also provide Ameritech Illinois with the ability to better manage its costs over time, primarily due to labor savings. Cost containment, as well as cost savings, are two of the major reasons why Ameritech Illinois replaces existing technology. Estimated operating expenses for existing technology and new technology are inputs to the cash flow analysis completed for each fundamental plan. While the costs of maintaining the network are expected to rise, placing new technology will cause them to increase less than they otherwise would.

Near Term Technology Deployment Plans

Q. What are Ameritech Illinois' plans to deploy new technology in the network in the 2000 – 2001 timeframe?

A. Ameritech Illinois has plans to deploy Next Generation Digital Loop Carrier (NGDLC) systems and upgrade many existing systems in an effort to make available additional service capabilities to the customer. These new and upgraded systems will have the ability to extend broadband services to customers that are beyond the reach of broadband services currently offered from a central office. We also plan to optimize the economic life of our narrowband-switching network through the deployment of GR-303 DS1 line side interface to the Digital Pair Gain in the loop plant. Planned deployment of OC-3 switch interfaces to the interoffice facility network will also add reliability and protection between the switch and interoffice facilities.

Q Could you please explain further what you mean by: Next Generation Digital Loop Carrier: GR-303 DS1: and OC-3 switch interface.

A. Yes. Next Generation Digital Loop Carrier is a carrier system that may be served by copper or fiber. Typically NGDLC is defined as a Digital Loop Carrier system that employs a Time-Slot-Interchanger (TSI) function between

the Central Office Terminal (COT) and the Remote Terminal to allow end user calls to be cross-connected to loop carrier-circuits on a dynamic basis. In short, NGDLC moves intelligent electronics closer to the customer location thereby making distance-sensitive broadband services available to a wider range of locations and customers. Schedule 1, attached to my testimony, is a diagram of the NGDLC architecture.

The GR-303 DS1 is a direct switch interface for Next Generation Digital Loop Carrier used in the access (loop) portion of the telephone network. The GR-303 interface enables customers to utilize the highest speeds available in the loop plant. The NGDLC system, when configured with the appropriate software and hardware components, will be capable of providing DSL broadband services in Ameritech Illinois' infrastructure.

OC-3 switch interface is a direct interface to the interoffice facility network that will reduce Optical to Electrical conversion at offices equipped with wide band Digital Cross Connect systems. This direct interface is more cost effective and improves efficiency, i.e. reduces equipment required for the conversion, and thus improves reliability.

Q. Are there any other plans to deploy new technology in the network in the 2000 – 2001 timeframe?

A. From a transport perspective, as I mentioned earlier, we plan to continue to deploy and grow an optically interconnected SONET-based architecture that will utilize OC-48 Bi-Directional line switched rings that are cost effective, manageable and reliable. Also we have an OC-192 upgrade plan that will provide higher SONET bit rate to meet customer demands and IXC meet points, as well as large customer dedicated rings, which are proven to be reliable.

Q. Please describe Project Pronto.

A. "Project Pronto" is a $6 Billion dollar 13 state investment by SBC in fiber, electronics and ATM technology to create a robust, comprehensive, data-centric broadband network architecture. Project Pronto is the deployment of NGDLC and the deployment of required fiber to support broadband services, thus reducing the loop length and qualification limitations traditionally associated with xDSL, thereby providing broadband capability to approximately 80 percent of customer locations within SBC territory. The focus of this project is the deployment of Central Office Terminals and Remote Terminals (RT) that will extend the loop reach for current and future Broadband services.

Project Pronto will support multiple broadband service providers, to the extent any service provider chooses to use this technology through SBC's

Broadband service offerings. Thus, SBC's Project Pronto brings increased choices to customers wanting high-speed data connections and increased options to DSL service providers.

Q. How will Project Pronto benefit Customers?

A. This mass-market deployment will offer consumers and other service providers new choices that they don't have today. This project places Ameritech Illinois and its SBC affiliates, such as AADS, at the forefront of investment in innovative network facilities designed to bring broadband services such as digital subscriber line ("DSL") to the vast majority of residential and small businesses customers in the Ameritech Illinois' operating areas at the lowest possible cost. In addition to Ameritech Illinois' retail customers, the network improvements that result from Project Pronto will be available to all CLECs in accordance with the requirements of the Federal Telecommunication Act of 1996. This will enable these CLECs to offer their own broadband services to customers.

The end result of Project Pronto, under current plans, will be that approximately 80% of the customers residing in the SBC ILECs' territory will be within 12,000 feet of a central office or Remote Terminal site. In addition, the customers will not only have the choice between DSL and cable

modems, but also will be able to choose among many broadband service providers who elect to use DSL broadband services.

Q. You used the phrase DSL in your previous response, please explain DSL further.

A. DSL stands for Digital Subscriber Line. DSL technology greatly expands the amount of data that can be transferred over a traditional copper phone line, allowing for high-speed Internet and data access, as well as other future services like multiple voice lines from a single connection. DSL technology may use a dedicated copper facility, or some variations of DSL may take advantage of a portion of the phone line that goes unused during voice communications, which enables subscribers to use the Internet while simultaneously talking on the phone.

Q. Will ATM technology continue to be deployed in Illinois?

A. Yes. It will be deployed through Ameritech Illinois' affiliate AADS. ATM stands for Asynchronous Transfer Mode. ATM, the core technology of SBC's data network, provides high-speed information transfer capability and near real-time multimedia communications among multiple locations. ATM service can be deployed both on a local level, as a private local area network (LAN), and over a wide area, as a backbone network or bridge connecting LANs to wide area networks. ATM is a packet-based technology that offers

the efficiency of packet switching as well as the reliability of the circuit-switched network. ATM allows for uniform handling of services, allowing one network to meet the needs of many broadband services.

Summary

Q. Would you please summarize Ameritech Illinois' plans for deploying new, state of the art technology in its network and the impact on the existing network?

A. Ameritech Illinois will continue its excellent tradition of providing high quality service through its state-of-the-art network. We will continue to evaluate new technologies and the potential benefits its introduction to the network would provide our customers. As an example, our processes and deployment strategy recently resulted in decisions to invest $6 Billion dollars in to Project Pronto. The overall deployment strategy and plans will be continually reviewed and modified in light of service needs, market considerations, capital requirements, and the impact of these plans on the overall cost characteristics of the business. However, Ameritech Illinois' general objective is to replace or upgrade old technology as the market demands, assuming proper economic incentives to do so.

This steady incorporation of new technology in the network benefits all customers. Our ongoing deployment and upgrade plans will permit higher quality service, wider availability of broadband services, advanced features and other capabilities required by customers.

Q. Does this conclude your testimony?

A. Yes.